DIAMOND-LIKE CARBON HEAT SINK FOR REFLECTIVE OPTICAL SWITCHES AND DEVICES

Abstract of the Disclosure

A reflective optical switch device includes a diamond-like carbon (DLC) heat sink layer disposed adjacent a reflective layer. In one embodiment, the reflective optical switch is a MEMS mirror having a substrate layer, a DLC heat sink layer, which is vapor deposited on the substrate layer, and a reflective layer deposited over the heat sink layer. In another embodiment, the optical switch device is a reflective LC-based switch having a first substrate, a DLC heat sink layer deposited over the first substrate, and an LC medium provided between a reflective electrode layer and a transmissive electrode layer. The DLC heat sink enables rapid dissipation and distribution of laser light induced heat away from the local target area of the reflective surface, thereby reducing deformation of the reflective surface and/or alteration of the optical properties within the local region to enhance performance.

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